

NEW SPECIES AND RECORDS OF NORTH AMERICAN HYDROPTILIDÆ (TRICHOPTERA)

BY D. G. DENNING

University of Wyoming, Laramie, Wyoming

At present approximately 115 species of Hydroptilidæ have been recorded from North America north of Mexico. Because of the difficulty in collecting this group of Trichoptera, due primarily to their small size and seclusive habits, the distribution of all the species is inadequately known. Probably a large number of new species remain to be discovered. The bionomics of most of the species is unknown and many of the species are as yet known only from the male.

A recent study of the Hydroptilidæ in the University of Minnesota collection has resulted in the establishment of a number of very interesting new distributional records, as well as the recognition of several new species. Holotypes are deposited in the collection of the University of Minnesota.

I wish to express my appreciation to Dr. C. E. Mickel for making this collection available for study, and to Dr. Mickel, Dr. Granovsky, Mr. Kretzschmar, Mr. Wirth and others for collecting this material.

Leucotrichia pictipes (Banks)

This fairly common species has been recorded from swiftly flowing streams in most of the northern states from New York to Oregon. MINNESOTA: Pine Co., Snake River, May 28, 1935 (H. E. Milliron), 5 males. Anoka Co., July, 1939 (D. G. Denning), 1 male. Carlton Co., St. Louis River, Aug. 11, 1940 (D. G. Denning), 40 males, 5 females. Cook Co., Temperance River, May 30, 1941 (H. P. Nicholson), 1 male. IDAHO: St. Anthony, June 28, 1938 (H. S. Telford), 12 males, 8 females.

Agraylea multipunctata Curtis

This Holarctic species is one of the most common Hydroptilidæ in Minnesota. Available records indicate

it is present from early spring to September. The first definite record from North Dakota is recorded herein. MINNESOTA: 97 males, 161 females from all portions of the State, April to Sept. NORTH DAKOTA: Valley City, July 15, 1939 (D. G. Denning), 2 males, 1 female. Wahpeton, July 16, 1937 (D. G. Denning), 2 males, 14 females. BRITISH COLUMBIA: Cowichan Lake, August, 1940 (C. P. Idyll), 3 males, 1 female.

Ithytrichia clavata Morton

This is the first record of the species from Minnesota, although it is known to have a wide range. MINNESOTA: Crookston, June 16, 1941 (D. G. Denning), 1 male, Hallock, light trap, July 7, 1937 (D. G. Denning), 3 males.

Ochrotrichia stylata (Ross)

Previously known from the western part of Wyoming; these are the first records from the eastern portion of the state. WYOMING: Guernsey, N. Platte River, Sept. 6, 1946 (D. G. Denning), 1 male. Near Wheatland, Blue Grass Creek, Aug. 22, 1946 (D. G. Denning), 5 males, 7 females.

Oxyethira serrata Ross

This species has previously been recorded from Illinois, New York and Wisconsin by Ross. The following records extend its known distributions considerably. MINNESOTA: St. Paul, light trap, July 14, 1935 (A. A. Granovsky), 1 male. St. Paul, light trap, Aug., 1934 (A. A. Granovsky), 5 males, 4 females. Cass Co., at light, June 17, 1937 (R. H. Nagel), 3 males, 4 females. Cass Lake, light trap, August 1-15, 1934 (A. A. Granovsky), 1 male, 3 females. BRITISH COLUMBIA: Cowichan Lake, August, 1940 (C. P. Idyll), 1 male.

Oxyethira verna Ross

LOUISIANA: Baton Rouge, April, 1947 (W. W. Wirth), 12 males.

Oxyethira obtatus n. sp.

This species can be distinguished from other members of the genus by the apical semi-membranous processes of

the ædeagus, the terminally forked condition of the internal sclerotized tube of the ædeagus and several other details of the male genitalia.

Male.—Length 3.2 mm. Genitalia as in figs. 1, 1A, and 1B. Mesal projection of seventh sternite small, acute. Lateral lobes of eighth segment produced into a triangular process, heavily setose, deeply incised dorsally; dorsad and mesad to this lobe appears a long attenuated process, directed gradually ventrad, bearing no setæ. Most of ninth segment withdrawn into eighth, caudolateral corner irregular, apparent claspers projected caudad (and slightly dorsad in paratype) beyond remainder of genitalia, slender, subacute, bearing a few minute setæ distally. Viewed from ventral aspect, fig. 1B, claspers slender, diverging mesad, separated by a concave serrate ventral plate. Tenth tergite heavily sclerotized, all but a small portion hidden in ninth segment; when seen from lateral aspect it appears as a somewhat inverted U-shaped structure, caudad branch digitate; viewed ventrally, fig. 1B, apices truncate, almost touching on meson, base arcuate. Ædeagus with base wide, spiral filament encircles tube once, long and slender, extending along side of tube nearly to apex; apical portion divided into two prominent semi-membranous processes, the shorter one bearing a large and two smaller spines, the longer one bearing a single large spine; near their base the internal sclerotized tube terminates as a fork in a small semi-membranous process.

Holotype, male.—St. Paul, Minnesota, August 1, 1934, light trap (A. A. Granovsky).

Paratype, male.—Anoka Co., Minnesota, July, 1939 (D. G. Denning) (specimen damaged).

Orthotrichia americana Banks

Records of Ross and the writer indicate that this species is widely distributed at least through the eastern half of United States. MINNESOTA: St. Paul, light trap, August 1, 1934, 4 male, 3 female; July 14, 1935, 2 male; June 20, 1935, 1 male (A. A. Granovsky).

Orthotrichia cristata Morton

The following records extend the known distribution of the species to Louisiana in the South and Minnesota in the North. MINNESOTA: St. Paul, light trap, July 14, 1935, 3 male (A. A. Granovsky). LOUISIANA: Baton Rouge, April, 1947, 57 male (W. W. Wirth).

Hydroptila armata Ross

The collecting of this species in the treeless plains of northwestern Minnesota is a very interesting extension in its known range. MINNESOTA: Washington Co., May 10, 1941, 5 male, 7 female (G. Kretzschmar). Crookston, Sept. 4, 1936, 1 male, 1 female (D. G. Denning).

Hydroptila spatulata Morton

This is the first definite record of the species from Minnesota. MINNESOTA: St. Paul, Aug. 1, 1934, 1 male, 2 female, light trap (A. A. Granovsky).

Hydroptila hamata Morton

Ross has recorded this species from southern Mexico, Ontario and widely scattered areas in the United States. The following constitutes the first records from Minnesota. MINNESOTA: Taylors Falls, August, 1937, 1 male (Carol J. Palmer). Washington Co., May 10, 1941, 1 male (G. Kretzschmar).

Hydroptila amæna Ross

Known previously from Illinois and Oklahoma; the Minnesota record indicates a wide range for this species. MINNESOTA: St. Paul, light trap, August, 1934, 2 male (A. A. Granovsky).

Hydroptila waubesiana Betten

The species is now known to occur from the Hudson Bay to the Mississippi delta. The following new distributional records make this species one of our most widely distributed *Hydroptila*. MINNESOTA: Rum River, reared, March 11, 1934, 1 male, 1 female (D. G. Denning). Cass Lake, light trap, August 1-15, 1934, 2 male (A. A.

Granovsky). Crookston, light trap, July 3, 1937, 1 male (D. G. Denning). Anoka Co., Coon Creek, June 4, 1937, 1 male, 1 female (D. G. Denning). NORTH DAKOTA: Wahpeton, July 11, 1934, 1 male, 1 female (D. G. Denning). MANITOBA: Churchill, light trap, August 6, 1937, 1 male (D. G. Denning).

Hydroptila grandiosa Ross

Although widely distributed in Central United States this is the first record from Minnesota. MINNESOTA: Anoka Co., Coon Creek, June 7, 1937, 1 male, 1 female (D. G. Denning).

Hydroptila albicornis Hagen

The records of Ross show the species to be widely distributed; the Minnesota record extends the known range in a northwestwardly direction. MINNESOTA: Cass Lake, light trap, August 1-15, 1934, 3 male (A. A. Granovsky).

Hydroptila consimilis Morton

This is a common species now known to extend from Texas to the Hudson Bay. MINNESOTA: St. Paul, light trap, August 1, 1934, 1 male, 3 female (A. A. Granovsky). Crookston, at light, July 4, 1937, 2 male, 1 female (D. G. Denning). MANITOBA: Churchill, August 2, 43 male, 34 female (D. G. Denning). Churchill, light trap, August 6, 1937, 1 male (D. G. Denning). Churchill River, 20 miles S. of Churchill, August 5, 1937 (D. G. Denning), 5 male, 15 female.

Hydroptila perdita Morton

Ross has recorded this species from Arkansas, Illinois, Michigan, New York, Ontario and Pennsylvania. MINNESOTA: Carlton Co., St. Louis River, Aug. 11, 1940, 1 male (D. G. Denning). St. Paul, light trap, July 14, 1935, 1 male (A. A. Granovsky).

Hydroptila ajax Ross

The range of *ajax* is poorly known; the following records extend its known range considerably to the North

and west. MINNESOTA: Washington Co., May 10, 1941, 1 male (G. Kretzschmar). WYOMING: Guernsey, N. Platte River, Sept. 6, 1946, 1 male (D. G. Denning).

Hydroptila arctia Ross

This species has not been recorded since its original description in 1938 from Idaho. BRITISH COLUMBIA: Cowichan Lake, August, 1940, 2 male, 1 female (C. P. Idyll).

Hydroptila acoma n. sp.

This species can readily be distinguished from other members of the genus by the large spur arising from the apical portion of the ædeagus.

Male.—Genitalia as in figs. 2, 2A and 2B. Lateral lobe of ninth segment acute, slightly upturned, extended caudad about one-half length of claspers. Tenth tergite semi-membranous, mesal incision deep, lateral portions with apices acute and diverging; seen from lateral aspect, fig. 2, distal portion directed dorsad. Claspers slender throughout, divergent, apex truncate, beset with short scattered setæ, between claspers appear two prominent caudad directed tubercles. Ædeagus with basal portion flared, narrowed just before spiral process which encircles ædeagus one and one-half time, its apex lying along side of tube and extending about midway to apex; seen from lateral aspect, fig. 2B, a large acute spur arises at right angles from apical portion.

Holotype, male.—Morgan Hill, California, at light, August 8, 1941 (Roland Johnson) (specimen with head missing).

Hydroptila valhalla n. sp.

This species belongs to the *perdita* Morton group of *Hydroptila*; it can be readily separated from other species of that group by the curious ædagus and the dorsad directed mesal portion of the tenth tergite.

Male.—Length 3 mm. Genitalia as in figs. 3, 3A, 3B, 3C. Mesal projection of seventh sternite short, apex acute. About half of the eighth segment telescoped into seventh segment. Claspers slender throughout, fig. 3C,

divergent, apex acute, darkened and directed laterad, base hidden in ninth segment, which in turn is withdrawn into eighth and seventh segments. Tenth tergite entire, semi-membranous, extending caudad beyond any other portion of genitalia; lateral margins somewhat more heavily sclerotized than remainder; mesal lobe sub-triangular when viewed from dorsal aspect, fig. 3. *Ædeagus* long and slender, basal portion nearly straight, narrowed toward center then suddenly widened, apparently forms a distinct division from apical portion which is bulbular at base then constricted to an acute apex, entire apical portion turned laterad when viewed dorsally, turned ventrad when viewed from lateral aspect.

Holotype male.—Taylors Falls, Minn., August 1937 (C. J. Palmer).

Mayatrichia ayama Mosely

The available distributional records of Ross indicate this species is widespread; the Minnesota record is an extension in the known northern limits of its range. MINNESOTA: Washington Co., May 10, 1941, 1 male (G. Kretzschmar).

EXPLANATION OF PLATE 15

- Fig. 1. *Oxyethira obtatus*, male genitalia, lateral aspect; 1A, apex of *ædeagus*; 1B, ventral aspect of male genitalia.
Fig. 2. *Hydroptila acoma*, male genitalia, lateral aspect; 2A, ventral aspect of male genitalia; 2B, *ædeagus*.
Fig. 3. *Hydroptila valhalla*, male genitalia, dorsal aspect; 3A, *ædeagus*; 3B, lateral aspect of male genitalia; 3C, clasper.

